

ABSTRACT OF THE DISCLOSURE

An excimer laser with a laser chamber containing a circulating laser gas containing fluorine and long-life, annealed, copper alloy electrodes. Electrode lifetime is increased by annealing them after the electrodes are machined. This annealing relieves the surface stress caused by the machining operation and reduces the exposed metallic grain boundary length per unit area on the surface of the electrodes, which provides substantial reduction in erosion caused by fluorine chemical attack. Annealing after machining also reduces the stress throughout the bulk of the electrode material. In preferred embodiments the anode is a copper-aluminum alloy and the cathode is a copper-zinc alloy.